

Leading a Literature Discussion

Choosing a paper: Choosing an excellent paper can be very difficult, and is the most important decision you'll make in this class. Your paper must be peer-reviewed primary literature (often called research articles). *Do not choose a review article!*

Be creative in how you look for your papers. You won't find the best papers by just typing your favorite broad subject (e.g. "breast cancer") into PubMed or Google Scholar. Read science blogs and scientific Twitter accounts to see what research people are excited about right now. Look through recent issues of good journals (see journal recommendations below) to find papers of interest.

Choose your subject carefully. You may choose a paper in any biological subject you like, but there are several things to consider. My areas of study and expertise are developmental biology, molecular biology, evolutionary development and craniofacial development, so if you choose a subject that I know less about, I will be able to help you less. Consider picking a subject that has been in the news and is socially relevant!

Choose your journal carefully. Be aware that that short format papers in extremely high impact journals (Science, Nature) may be so dense that they are difficult for you and your colleagues to read and unpack. At the opposite end of the spectrum, articles in esoteric journals (often titled "The International Journal of ...") with very low impact factors (<2) may be poorly written and difficult to get excited about. You may have the best luck with journals that have impact factors between ~3 and ~20. Good journals to consider include: Current biology, Proceedings of the National Academy of Science, eLife, Developmental Biology and Development.

Choose your paper carefully. Expect to initially consider 10-15 papers, then narrow that down to a list of 2-5 that you can discuss with me during class or office hours. You should read through and generally understand much of the paper (at least the abstract and the figures) before you commit to it. You should know what you're getting yourself into. Consider the length of the paper: you may not want to choose something with 14 figures and 20 pages of supplementary literature. The paper you choose should be relatively recent, i.e. published no earlier than 2013. (Although you may choose an older "classic" paper with appropriate justification and my approval.) You may choose a paper you've already read in a journal club or in a class (within reason. Don't choose something everyone has already read).

Scheduling presentations: After you have gotten approval from me, you can claim your paper and your presentation date at the spreadsheet: <http://tinyurl.com/zyhe73f>. If you are signing up for one of the papers on the compiled list, please take a presentation date early in the semester. First come, first served!

Written component: In the written component of your assignment, you will practice writing about scientific discoveries in multiple formats for multiple types of audiences.

Written work is due at noon on Monday before your presentation date.

Your written component will have 4 sections:

1. Five multiple choice quiz questions that should be easily answerable by anyone who read the paper. Each question should have a correct answer and 4-7 incorrect answers. I may choose (or modify) one of these questions for the quiz.
2. A scientific summary outlining the significance and major findings of the paper aimed at biologists not in the paper's area of specialty. (<2 pages double spaced plus 5-10 references cited)
3. A press release of the paper's importance aimed at non-scientists at a high school level. (100-500 words)
4. A tweet for non-scientists (140 characters)

All of the writing must be *in your own words*! I take plagiarism very seriously! Be particularly careful with the paper you are writing about, as it will be easy to lift phrases from the original manuscript.

Self-plagiarism is acceptable, e.g. similar sentences appearing in both your scientific summary and your press release.

Written assignments must be turned in no later than *noon on Monday before your presentation date* through Turnitin.com:

Class ID: 13282356

Password: NRG1

Plan to turn in early to make sure that your similarity score is acceptable. Note that references will drive up the similarity score; don't stress about that. Just make that your writing is original.

I will post your written work to <http://tinyurl.com/hnd8ktt> by Tuesday evening before your presentation so that the whole class can read it, and use it as a guide as they read the paper.

I have also uploaded a few links to resources that might help you read and interpret your first papers.

Presentation component: We will have a discussion about the paper you choose in the format of a lab journal club. Your goal is to facilitate a lively and educated discussion about the paper, engaging everyone in the class as much as possible. Get everyone to participate! There will be two sections to the presentation:

1. Introduction (~15 min) Your introduction to the paper should answer the questions: Why did you choose this paper? What was the state of this field before this paper was published? Why is this work important? How does this work advance the field? The goal is to generate enthusiasm for the subject and the paper, and present a foundation of information and knowledge that will facilitate an excellent discussion.
2. Discussion (~55 min) You will lead your colleagues in a thoughtful analysis of each of the paper's figures. You will go through each of the figures sequentially, and we will critically discuss the methods, results and implications of each section of each figure. Structure the discussion by thinking of questions to ask your colleagues about each figure. You should include all of the supplementary figures in your slides, but it is up to you which are relevant enough to be part of the discussion.

Remember that all discussion should be both thoughtful and respectful.

Slides: You should make the slides for your presentation on your own computer (in Powerpoint or Keynote or another program), and be prepared to present from your computer. *Use good slide design!* Slides should have a clear title, large, clear, relevant images and very few words. Use (*properly attributed!*) images from the Internet and from other papers in your introduction. For your discussion, use each figure from your paper, and include supplementary figures as necessary.

Your slides are due to me by email immediately before class.